

### Remarks

Claims 1-9, 11, 12 and 14-21 were pending.

Claims 1-3, 9, 11 and 14 are amended.

Claim 8 is original.

Claims 4-7, 12, 15-17, 20 and 21 are as previously presented.

Claims 18 and 19 are cancelled.

Claims 22 and 23 are new.

The application now contains claims 1-9, 11, 12, 14-17 and 20-23.

In order to focus more clearly on certain aspects of the invention, claims 18 and 19 are cancelled and claims 22 and 23, which are dependent on claims 1 and 3 are added. Support is found in the specification on page 4, lines 7-17.

Claims 1, 2 and 9 are amended in line 1 to delete the phrase "comprising particles having" and insert in its stead the phrase "the particles of which have"; amended in line 3 to delete the term "contain" and insert in its stead the term "consist of"; and amended to list at the end of the claim the materials which make up additional optional layers. Support is found in the specification on page 4, lines 5-7 and 20-22; page 6, lines 12-20; and page 10 lines 15-30.

Claims 2 and 9 are further amended to add the limitation that the metal of the thin semi-transparent metal layer is selected from Cr, Mo, W, Al, Cu, Ag, Au and Ni. Support is found on page 2, lines 26-27.

Claim 3 is amended in line 1 to delete the phrase "comprises in addition" and insert in its stead the phrase "particle consists of the core of SiO<sub>y</sub>, the component (a) and"; amended to replace "0,1" with "0.1"; and amended as in claims 1 and 2 to list at the end of the claim the materials which make up additional optional layers.

Claim 11 is amended to delete the redundant word "Pigment" from line 2.

Claim 14 is amended to delete the term "metal oxide of" from line 1 and insert in its stead the properly supported term "dielectric material having a". Support is found in claim 1.

No new matter is added.

## Claim Rejections

**Claims 1-6, 9, 11, 12 and 14-21** are rejected under 35 USC 102(e) as being anticipated by Phillips et.al., US 6,596,529.

Applicants respectfully traverse the rejections.

The claims as instantly amended are to a pigment having a core of  $\text{SiO}_y$  with  $1.1 \leq y \leq 1.8$ , and either a dielectric material having a high index of refraction (claims 1 and dependent claims), or a thin semi-transparent metal layer wherein the metal is selected from Cr, Mo, W, Al, Cu, Ag, Au and Ni (claim 2, 9 and dependent claims). The instant pigments are of a specified size. The  $\text{SiO}_y$  core of the instant pigments are also of a specified size and are transparent or semi-transparent as detailed below.

The pigments disclosed in Phillips contain either a metallic reflector layer or a titanium based absorbing layer. The composition of the titanium based absorbing layer is detailed in column 8, lines 37-67. Titanium dioxide is explicitly ruled out as an absorbing layer in lines 40-45. Examples of suitable titanium materials are found in lines 50-67. Applicants note that the materials given as examples for use in the titanium based absorbing layer are quite different from the materials given as examples for dielectric materials in column 7, lines 23-53.

The pigments of the instantly amended claims may have additional optional layers, however, none of the layers of the instant pigments are a reflector layer or are composed of the materials which make up the titanium based absorbing layer of Phillips.

It is Applicants' belief that the claims as instantly amended are explicitly outside the disclosure of Phillips and that there is no anticipation of the instant claims by Phillips et.al., US 6,596,529. However, given the stage of prosecution of the instant application and the points raised and discussed prior to the present amendments, Applicants offer the following discussion for the sake of completeness.

One of the points made in the Advisory Action mailed June 26, 2007 is that the claims in their previous form were open range claims. The claims as instantly amended may include a number of optional layers, but as written, there is a closed set of materials from which these layers may be made and none of these layers can be a reflective layer or titanium based absorber layer found in Phillips.

Applicants, in a previous paper mailed January 26, 2007, presented arguments that the pigments of the instant invention have a transparent or semi-transparent core while the pigments of Phillips have a reflective core.

The Office Action dated March 20, 2007 pointed out that there are no limitations in the instant claims relating to a "transparent or semi-transparent core" and that the pigments of Phillips need not have a "reflective core", e.g., figure 9 in Phillips has a reflective layer which is not the pigment "core".

Regarding whether the instant pigments have a transparent or semi-transparent core, Applicants respectfully respond that  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) is known to those skilled in the art to be inherently transparent or semi-transparent, and hence so is the core of the instant pigments. Applicants respectfully point to Phillips et.al., US 6,596,529 cited in the Action, in particular column 6, line 53 to column 7, line 52. The discussion from column 6, line 53 to column 7, line 3 describes how to calculate the optical thickness of a dielectric material with a known refractive index. The dielectric layers of Phillips are said to "be optically clear, or may be selectively absorbing so as to contribute to the color effect of the pigment". The paragraph beginning on column 7, line 23 lists  $\text{SiO}$  as an example of a dielectric material having a high refractive index and the beginning on column 7, line 38 lists and  $\text{SiO}_2$  as an example of a dielectric material having a low refractive index. Therefore it is known that various silicon oxides are optically clear or only partially absorbing.

It is apparent that interference color and color shifting properties are only obtained, if the dielectric layers show a certain degree of transparency. As known to those skilled in the art  $\text{SiO}$  is a semitransparent material and  $\text{SiO}_2$  is a transparent material and the optical properties of  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) range between those of  $\text{SiO}$  and  $\text{SiO}_2$ .

In light of the above discussion and the disclosure of Phillips et.al., US 6,596,529, Applicants respectfully maintain that transparency or semi transparency is an inherent characteristic of  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) and that within the physical constraints of the instant pigments, i.e., a particle thickness of

20 nm to 2  $\mu\text{m}$ , the instant core of  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) is also known in the art to be inherently transparent or semi-transparent.

Applicants therefore respectfully submit that the limitation “transparent or semi-transparent” is inherent in the claims even though the words transparent or semi-transparent are not used.

Regarding whether the pigments of Phillips contain a reflective core, Applicants can agree with the Examiner that the reflector layer of Phillips need not be the central component or middle layer of the pigment, for example, column 5, lines 41-50, wherein the pigment flakes have a reflector layer which is symmetrically or unsymmetrically coated or a reflective core which is encapsulated. However, all the pigments of Phillips do contain a reflector layer or a titanium based absorbing layer, examples of the absorber layer are given in the last column of column 8.

Applicants respectively submit that a coated reflective layer or a titanium based absorbing layer is a feature of US 6,596,529 and such a feature is not part of the instantly amended claims.

The Examiner and Applicants disagree on the meaning of this passage from Phillips, “non-stoichiometric materials are also within the scope of the present invention..... For example, silicon monoxide and silicon dioxide have nominal 1:1 and 1:2 silicon:oxygen ratios, respectively, but the actual silicon:oxygen ratio of a particular dielectric coating layer **varies somewhat** from these nominal values. **Such** non-stoichiometric dielectric materials are also within the scope of the present invention.”

Applicants question whether the phrase “varies somewhat” as applied to the nominal 1:1 and 1:2 silicon:oxygen ratios would direct one to the  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) of the instant invention. Also, while there are many dielectrics in Phillips, there is no teaching of pigment with a core of  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ). Applicants maintain that  $\text{SiO}_y$  ( $1.1 \leq y \leq 1.8$ ) is significantly different from 1:1 and 1:2 silicon:oxygen ratios; the Examiner feels that  $1.1 \leq y \leq 1.8$  varies only somewhat from 1:1 and 2:1.

Applicants respectfully suggest that given the amendments and discussions above, the answer to this question is no longer relevant as the reflective layer or titanium based absorbing layer of Phillips is not part of the instantly claimed pigments.

In light of the above, Applicants respectfully submit that Philips, et.al., US 6,569,529 does not anticipate the instant invention as the pigments of Phillips contain a reflective layer or titanium based absorber layer which layers are not included within the scope of the instantly amended claims. Applicants therefore kindly ask that the Examiner withdraw the rejections under 35 USC 102(e) of claims 1-6, 9, 11, 12 and 14-17 and 20-23.

**Claim 7** is rejected under 35 USC 103(a) over Phillips et.al., US 6,569,529 in view of Vogt et.al., US 6,238,471. **Claim 8** is rejected under 35 USC 103(a) over Phillips et.al., US 6,569,529 in view of Schmid et.al., US 5,624,468.

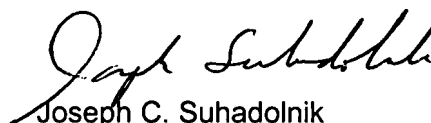
Applicants respectfully traverse the rejections.

Applicants respectfully suggest that, as discussed above, the pigments of the instant invention are novel over Phillips et.al., US 6,569,529 and therefore the combined art in each of the 103(a) rejections fails to meet the limitations of claims.

Applicants therefore kindly ask that the Examiner withdraw the 103(a) rejections of claims 7 and 8.

Applicants respectfully submit that in light of the amendments and discussion above all rejections are overcome and kindly ask that the rejections be withdrawn and claims 1-9, 11, 12, 14-17 and 20-23 be found allowable.

Respectfully submitted,



Joseph C. Suhadolnik  
Agent for Applicants  
Reg. No. 56,880  
filed under 37 CFR 1.34(a)

Ciba Specialty Chemicals Corporation  
Patent Department  
540 White Plains Road  
P.O. Box 2005  
Tarrytown, NY 10591-9005  
Tel. (914) 785-2973  
Fax (914) 785-7102